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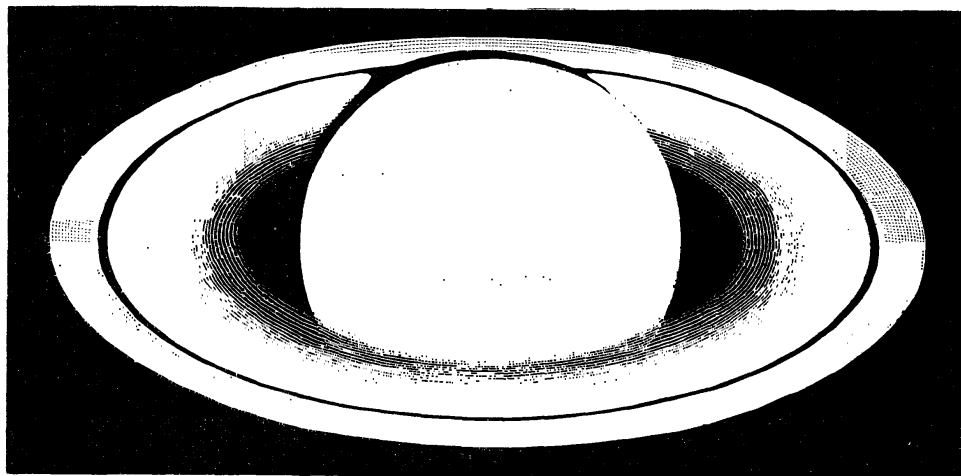
Note on a Narrow Belt seen on the Planet Saturn.

By A. C. Ranyard.

While observing the planet *Saturn* on the evening of November 4, 1883, at about 10 P.M., with an 18-inch silver-on-glass Reflector, I noticed a narrow dark belt on the body of the planet; it stretched across the disk, and at moments of good definition could be seen to fade away towards either limb; but I thought that the decrease in intensity was not as marked as in the case of similar belts upon *Jupiter*. The colour of the belt was a dark-blue gray, decidedly different from the reddish-brown of the belts upon *Jupiter*. On this evening it was a striking object, nearly as easily seen as the Cassini division in the ring, though not so dark. I estimated its breadth as about double the breadth of the Cassini division, where it is seen broadest in the ansæ. I did not very accurately estimate its position upon the planet; it was quite clear of the projection of the gauze ring upon the ball, and was possibly 10° or 15° to the south of the equatorial regions. On the evening of the 4th the belt was so easily seen that I showed it to two persons who were quite unused to looking through a telescope, and I have little doubt, from their answers to my questions, that they saw the belt I have described. At about eleven o'clock the sky became cloudy, and I had no further chance of examining the planet till the evening of November 13, at about a quarter past twelve, when I again saw the narrow belt stretching all across the ball. The definition was not as good as on the 4th, and the belt was much more difficult to make out than on the former occasion. I thought it was decidedly less dark. It was still narrow, but nebulous, and there was no comparison between its visibility and the visibility of the Cassini division. I continued observing it till half-past one, and

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only saw it in the intervals of good definition. However, I had no doubt about its being there, and that it stretched all across the disk.



Saturn at End of 1883 and Beginning of 1884.

I did not again have an opportunity of examining the planet till the evening of the 21st, at about half-past nine, when the definition was fairly good. I distinctly saw the narrow belt; it still appeared to me to be bluish-gray, decidedly darker than the south polar cloud-cap, from which it was separated by an interval of more than its own breadth. It appeared to me to extend all across the disk, and I again noticed that I could trace it to the limb, with but little if any decrease in intensity. The central part of the belt appeared to me to be below (that is, to the north of) the major axis of the rings, while the extremities of the belt were about an equal distance above the major axis. I was struck by the fact that the inner edge of the gauze ring seen projected upon the body of the planet appeared to be more curved than the narrow belt on the body of the planet. On several other occasions I have noticed the great curvature of the edge of the gauze ring as seen projected on the body of the planet. The Rev. T. W. Webb writes me that he has noticed this appearance, and that to his eye it appeared more curved on the preceding than on the following side. A friend, to whom I pointed out the decided curvature of the inner edge of the gauze belt as compared with the curvature of the outer edge of the rings, suggested that the appearance must be due to the shadow of the rings projected on the ball of the planet; but the position of the sun as compared with the plane of the rings shows that the shadow of the rings at the time could not be seen from the earth. I would suggest that the appearance may probably be explained by the fact that the central part of the disk of the planet is brighter than the limb, and that the gauze belt is best seen where it is projected on the fainter background.

On the evening of November 21 Mr. B. J. Hopkins was with me, and spent some time in examining the planet. He stated that he distinctly saw the dark belt, but he did not agree with me that it could be traced all across the disk. He, however, concurred with me as to its breadth and its position with regard to the major axis of the rings.

Dr. Copeland writes to me, under date 1883 December 1, that he saw on November 6 "a dark belt on the body of *Saturn*, in about 20° south latitude, sharp towards the equator and shaded off towards the pole. Breadth about twice that of the great division in the ring."

ADDENDUM.

Mr. Denning has sent me a highly-finished drawing of *Saturn*, made with a 12-inch Reflector, on January 7, 1884. It clearly shows the dark belt above described separated from the polar cloud-cap by a brighter division of about its own breadth. He has also sent a drawing of the planet made in November 1882, which shows a similar belt which is not separated by a bright division from the polar cloud-cap.

Mr. George Hunt has also sent me a drawing, showing the narrow belt as seen with his 8-inch Cooke Refractor on the evening of January 24. He describes it as a thickening of the line of demarcation between the bright equatorial belt and the polar cloud-cap. The thickness of the dark belt and its position with regard to the major axis of the rings agrees well with the drawing given above.

There were slight inequalities in the thickness of the narrow belt—it appeared to be more sharply defined on its northern than on its southern edge. I should describe it as nebulous, and certainly not broken up into a chain of cloud masses as shown in the drawing of Trouvelot and Pratt. I have not seen any other belts or streaks upon the ball of the planet, or any white patch at the southern pole.

Nor have I at any time seen any sharp line of demarcation between the gauze ring and the bright ring B, as shown in most drawings. The gauze ring appears to me to shade insensibly into the brighter ring. The inner bright ring (B) appears to have a brighter broad band adjacent to the Cassini division, but I do not feel sure that this may not be due to contrast with the dark space. I have not at any time seen any brighter stripe upon the outermost ring (A), as shown in Mr. De La Rue's celebrated drawing of the planet, and in many other subsequent drawings. Instead of a bright stripe towards the outer edge of ring (A), the light of the ring seems to me sensibly to degrade from near the centre of ring (A) to its outer edge.